

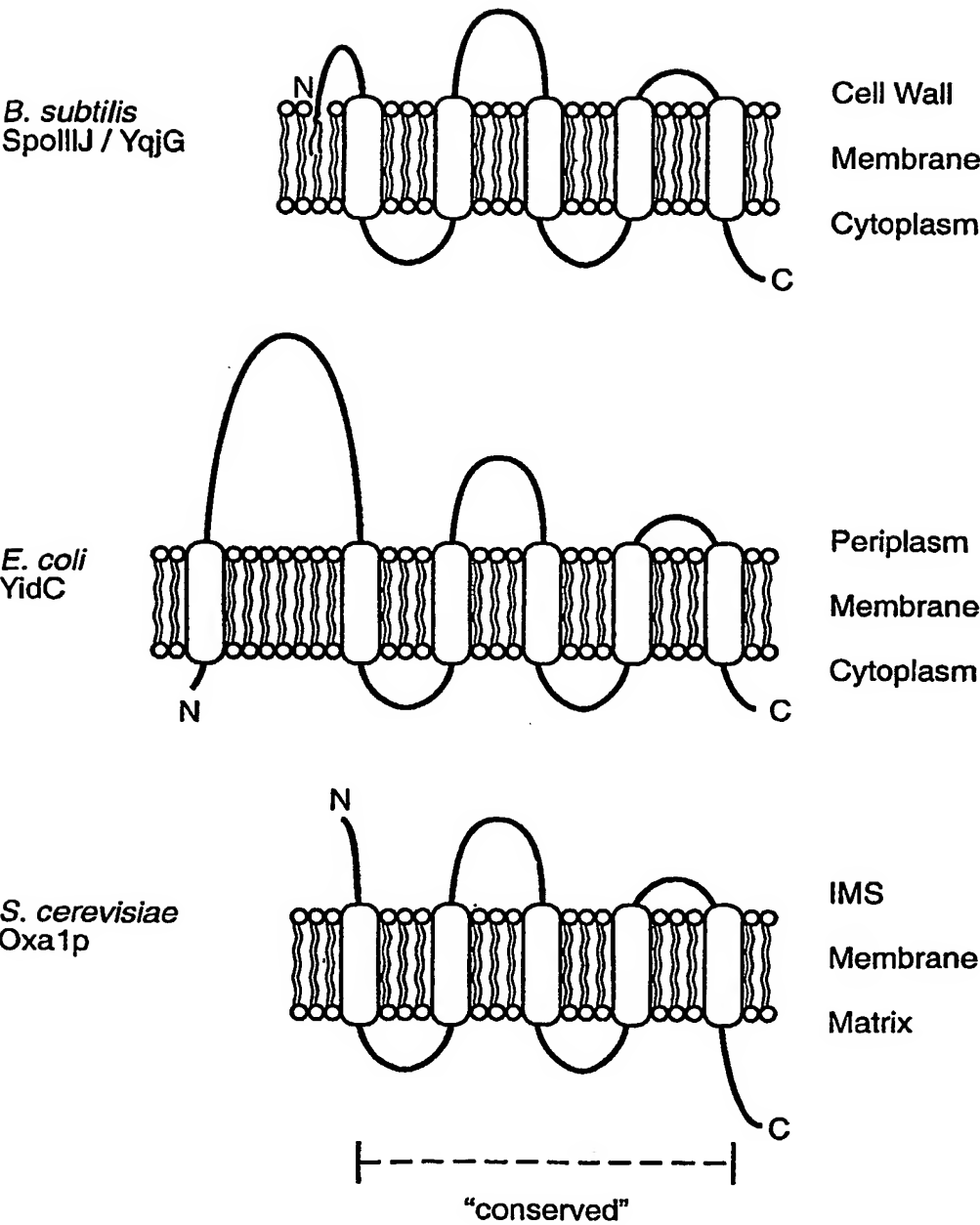
1 / 9

|         |     |                               |   |
|---------|-----|-------------------------------|---|
| SpolIIJ | 63  | MLKRRIGLLLSMVGVMFLLAG         | CSSVKEPITADSPHFWDKYVYPLSELITYVAKLTGDN-----                |
| YqjG    | 65  | ML-KTYQKLLAM---               | GIFLIVLCSGNAFAATNQVGGLSNVGFFHDYLIIEPFSALLKGVAGLFHGE       |
| SpolIIJ | 121 | YGLSIIIVTILIRLLILPLMI         | KQLRSS-----KAMQALQPEMQKLKEKYSS-KDQKTQQKLQOETMA            |
| YqjG    | 128 | YGLSIIIVTIIIVRIVVLP           | LFVNFQFKKQRIQFQEKMAVIKQVDSIQVKLKKTKDPEKQKELQMEMMK         |
| YidC    | 410 | WGFSIIITFIVRGIMYPLT           | KAQYTSM-----AKMRMLQPKIQAMRERL--GDD--KQRISQEMMA            |
| Oxa1p   | 189 | WNGTIAATTILIRCLMFPLYV         | KSSDTV-----ARNSHIKPELDAALNNKLMSTTDLQOQQLVAMQRKK           |
| SpolIIJ | 182 | LFQKHGVNP--                   | LQAG-CFPILLIQMPILIGFYHAIMRTQAISEH--SFLWFDLGEKDPYYILP--IVA |
| YqjG    | 190 | LYQEHINP--                    | LAMGCLPMLIQSPIMIGLYYAIRSTPEIAH--SFLWFSLGQSDIIMSLSAGIMY    |
| YidC    | 473 | LYKAEKVN--                    | LGG-CFPLLIQMPIFLALYYMLMGSVELRQAPFALWIHDLQAQDPYYILP--ILM   |
| Oxa1p   | 255 | LLSSHGKKNRWLAAPMLQIPIALGFFNAL | RHMANYPVDGPFANQGVANFTDILTQADPYLGLQVITAA                   |
| SpolIIJ | 241 | GVATFVQQKLM                   | MAGNAQQNP-----QMAMMLWIMPIIMIIVFAINFPAALS                  |
| YqjG    | 256 | FVQAYIAQKLSAKYSAVPQN          | PAAQQAQSAKLMVFIFVMMTIFSLNVPAALPLYWFTSGLFLTVQNIIV          |
| YidC    | 532 | GVTMFFIQKMSPT--               | TVTDP-----MQQKIMTFMPVIFTVFFLWEP                           |
| Oxa1p   | 315 | VFISFTRIGGETGAQQFSSP          | -----MKRLFTILPIISIPATMNLSSAVVLYFAFNGAFSVLQTM              |
| SpolIIJ | 261 | IKGPD                         | IKKNPEPQKAGGKKK   |
| YqjG    | 275 | LQMT                          | HHKSKKTAALTESV-K  |

FIG. 1A

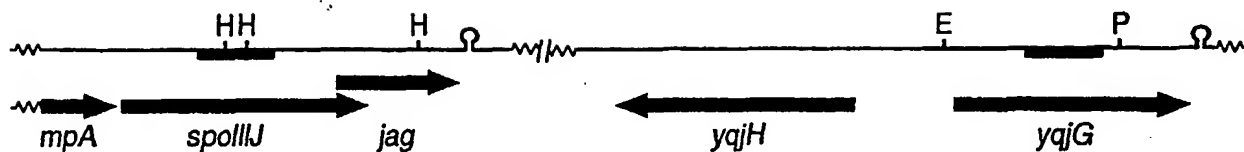
BEST AVAILABLE COPY

2 / 9

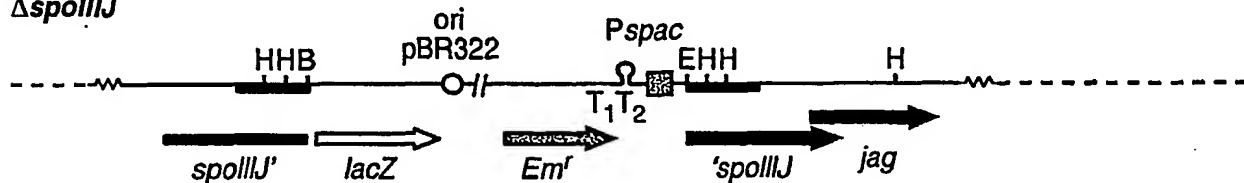


**FIG. 1B**

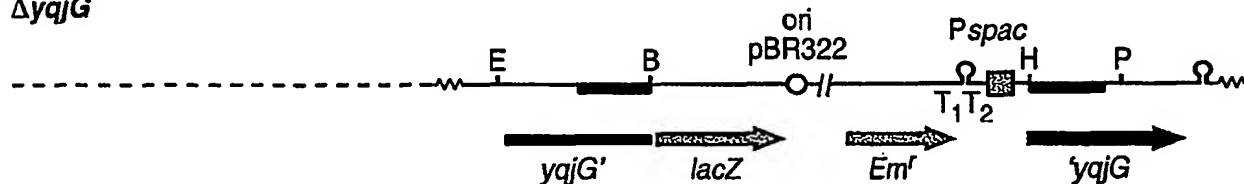
3 / 9

***B. subtilis* 168**

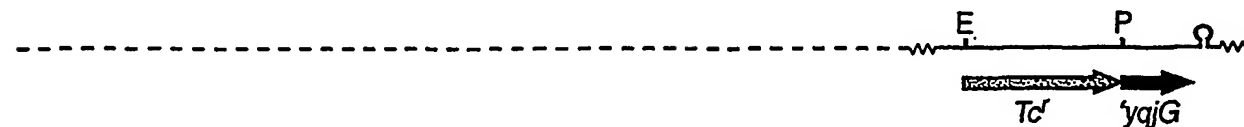
↓ Sco integration  
of pMutin- $\Delta$ *spoIIJ*

***B. subtilis*  
 $\Delta$ *spoIIJ***

Sco integration  
of pMutin- $\Delta$ *yqjG*

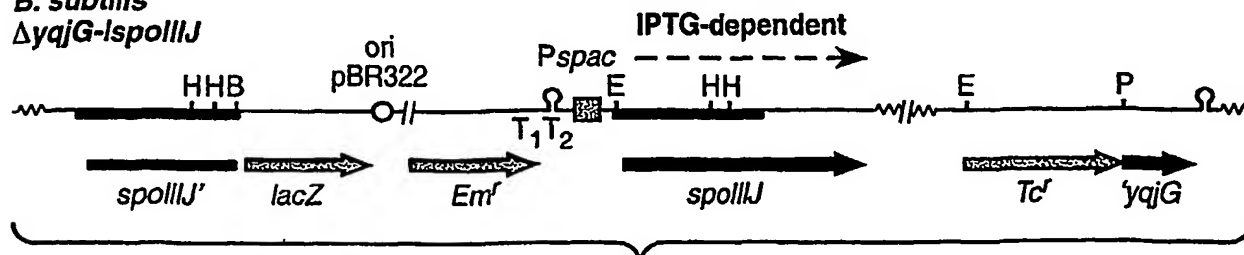
***B. subtilis*  
 $\Delta$ *yqjG***

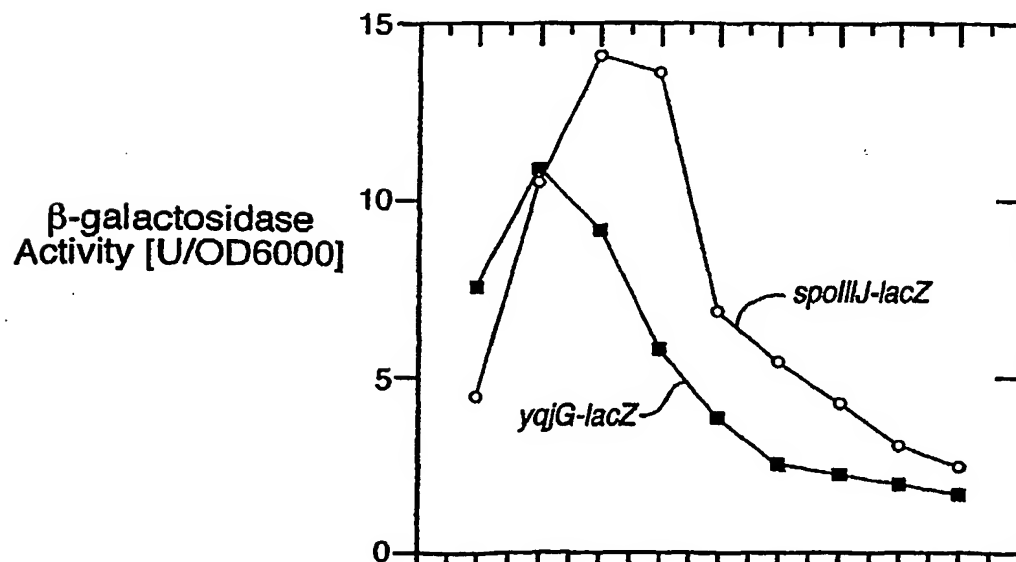
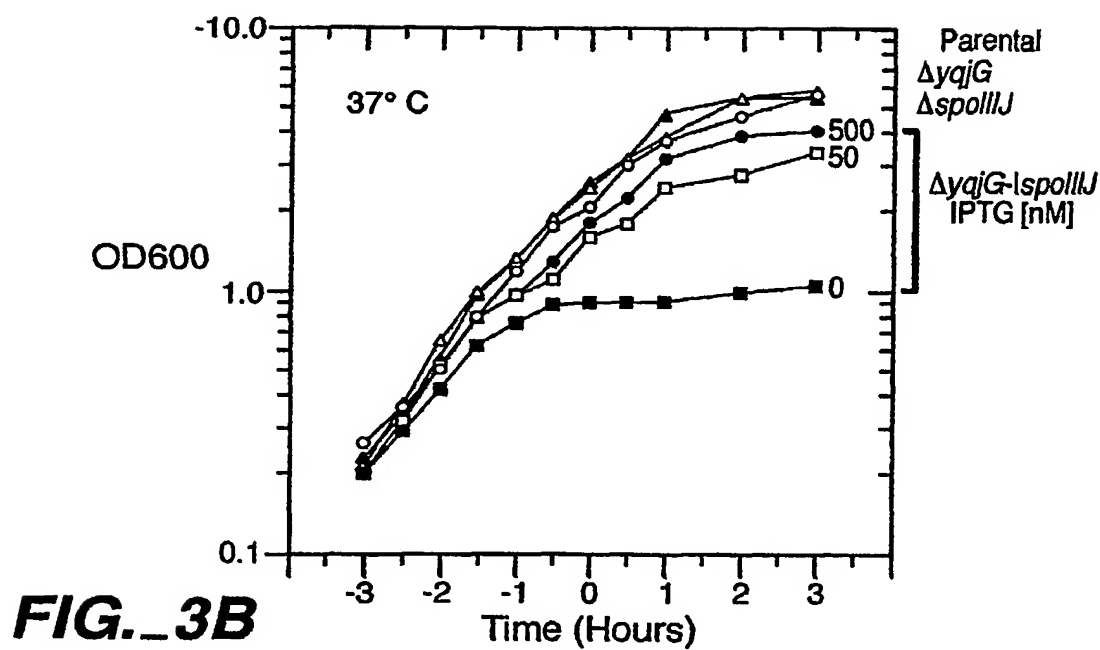
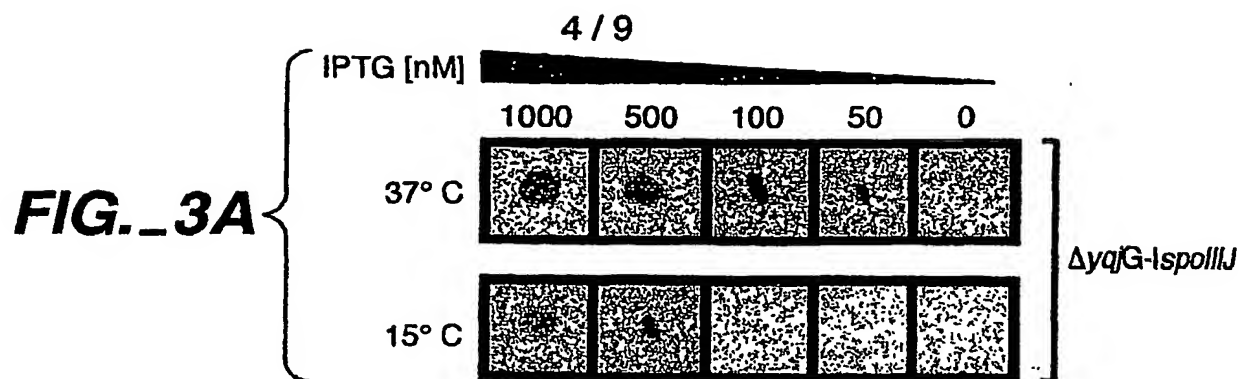
Dco replacement of *EcoRI*-*PstI*  
fragment by a *Tc*<sup>r</sup> marker

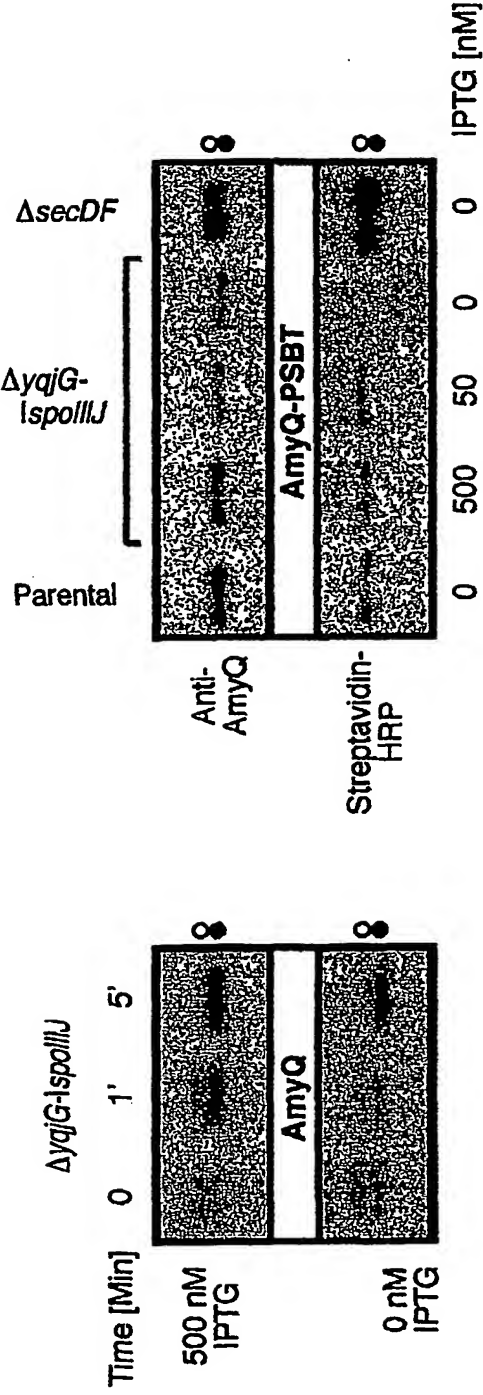
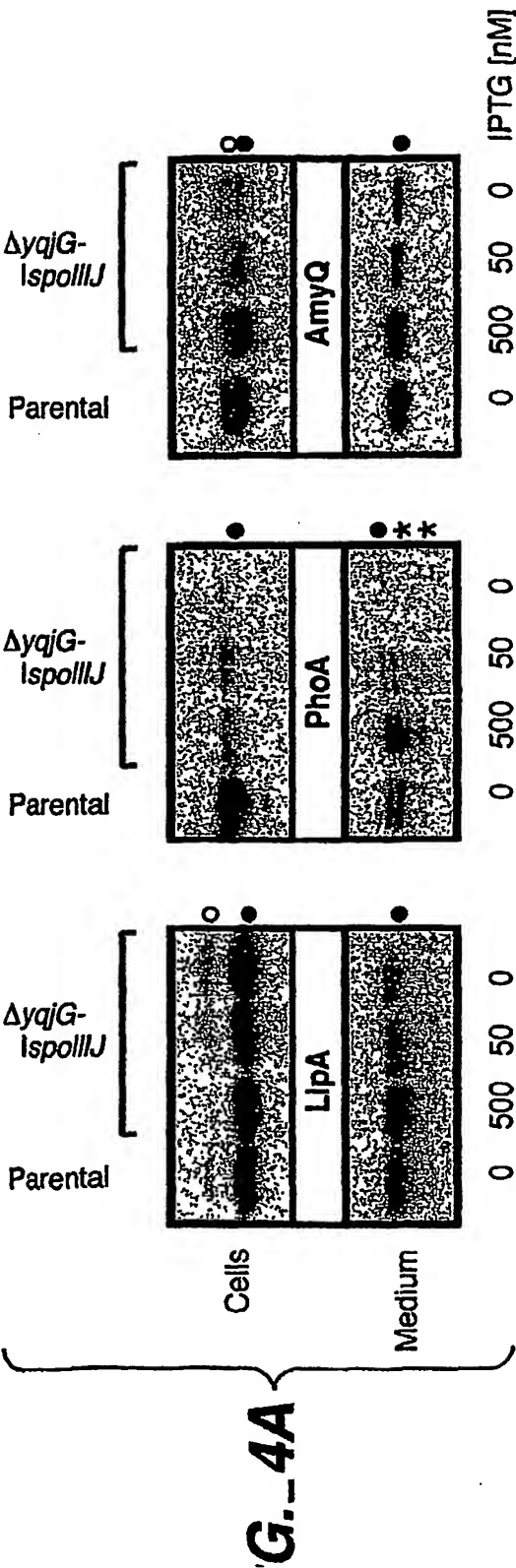
***B. subtilis*  
 $\Delta$ *yqjG-Tc***

↓ Sco integration  
of pMutin-*lspoIIJ*

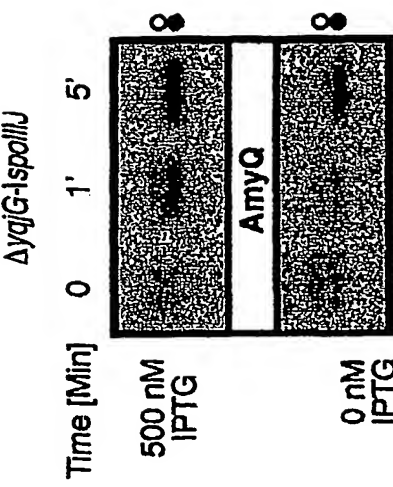
Dco replacement of *EcoRI*-*PstI*  
fragment by a *Tc*<sup>r</sup> marker

***B. subtilis*  
 $\Delta$ *yqjG-lspoIIJ***

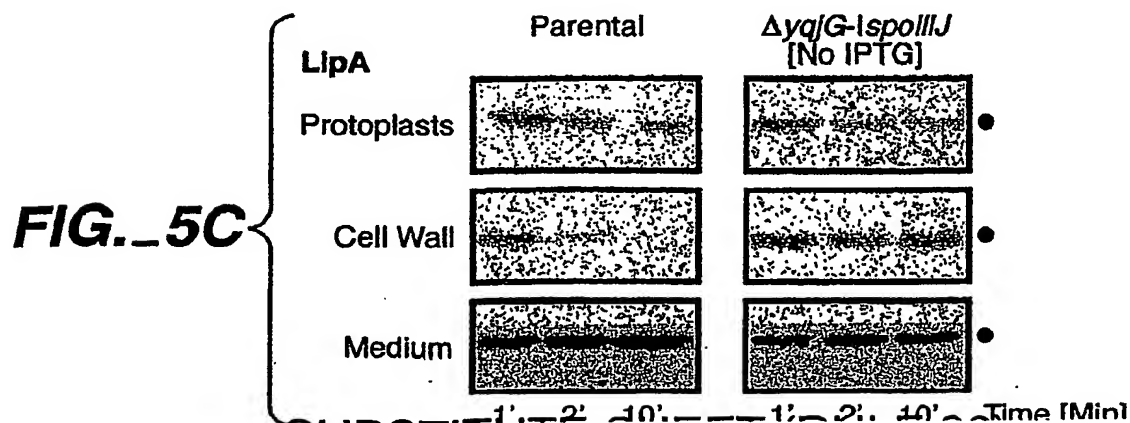
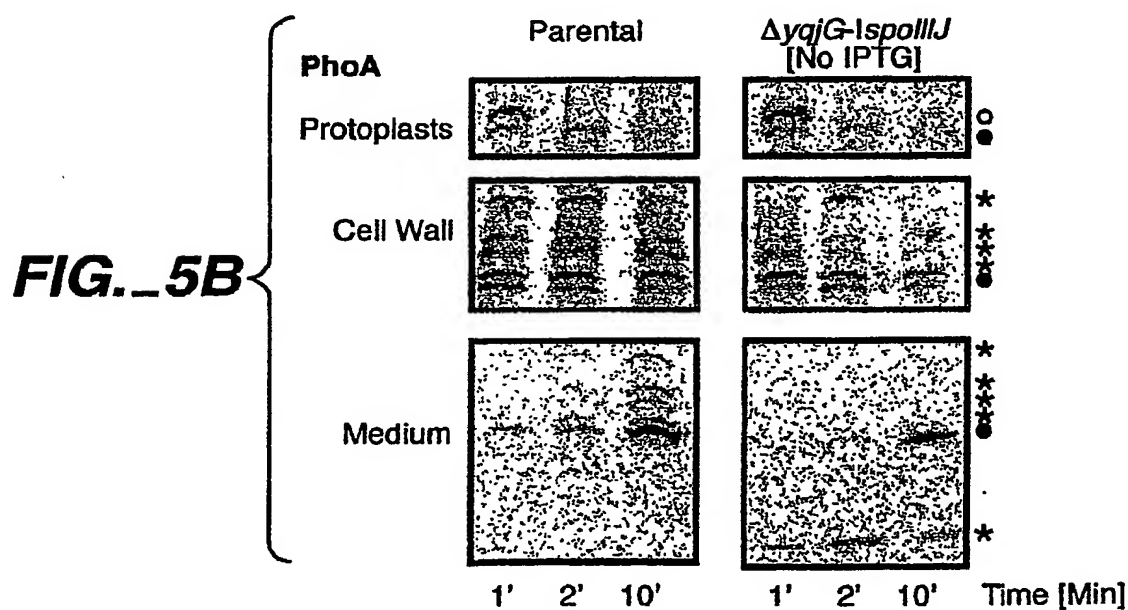
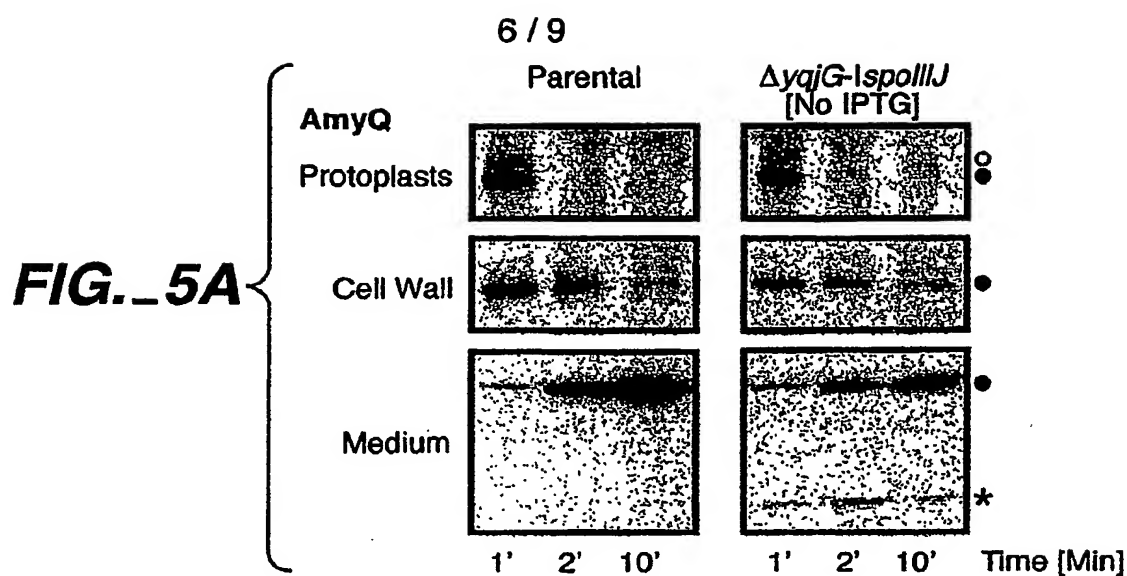




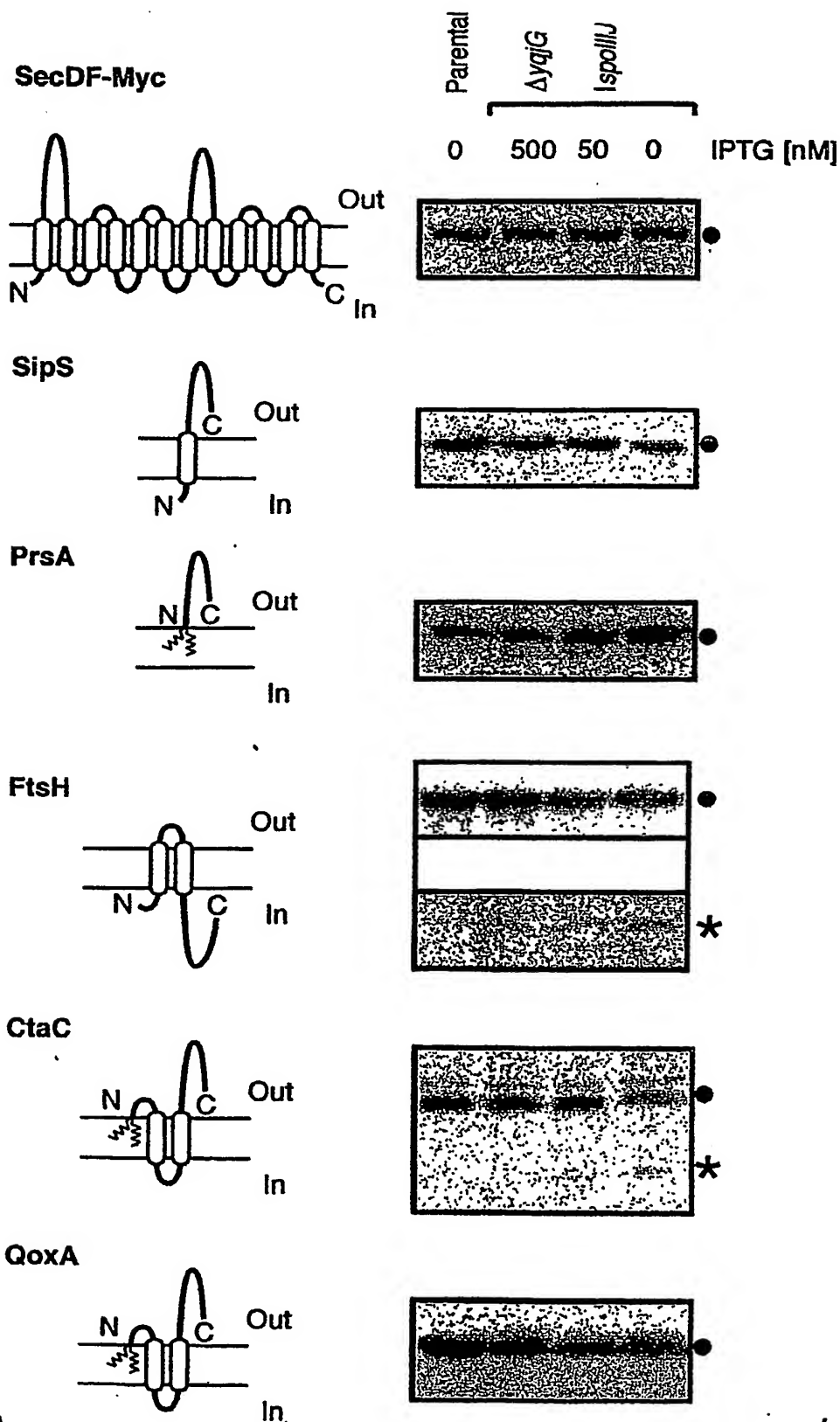
**FIG.\_4C**



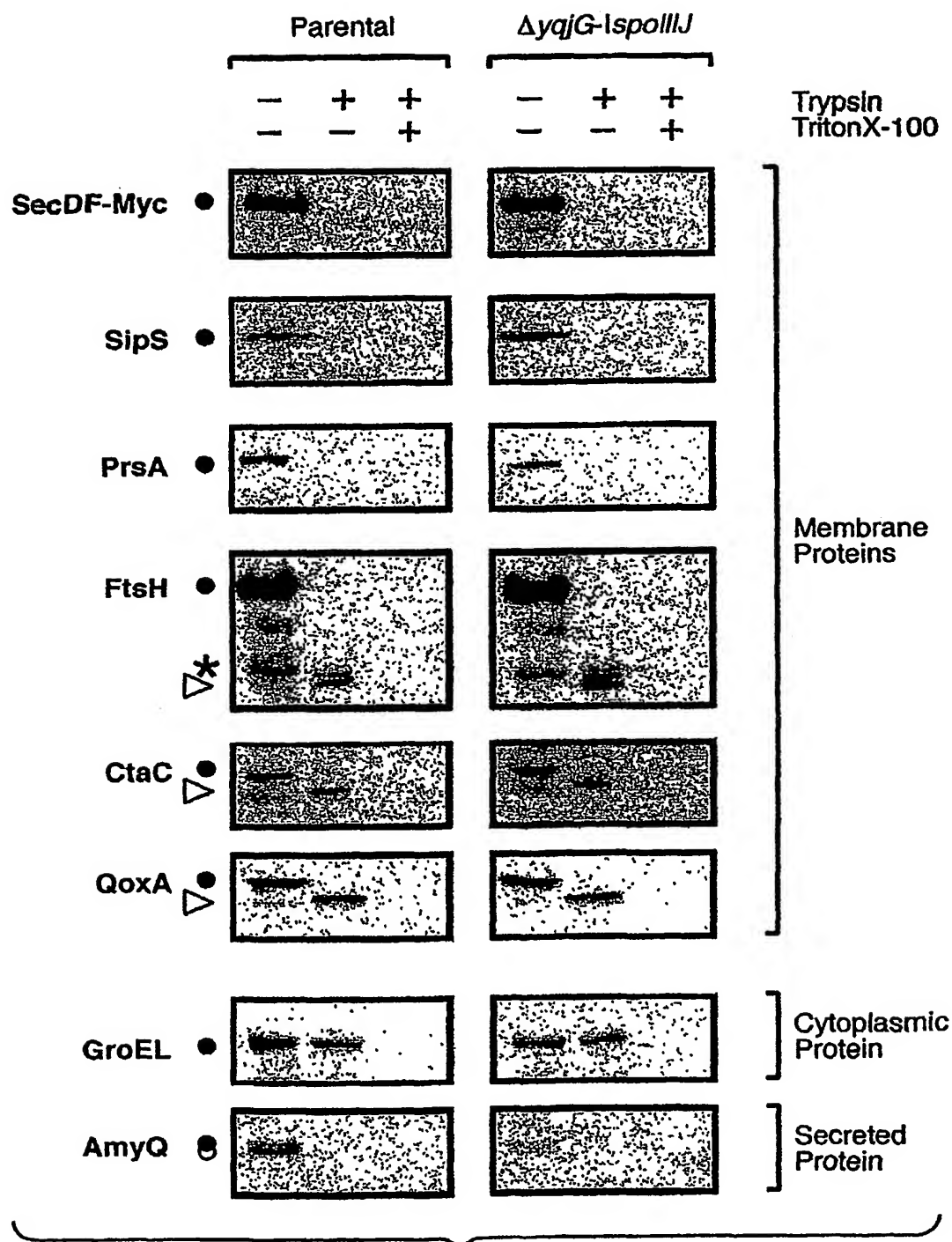
**FIG.\_4B**



7 / 9

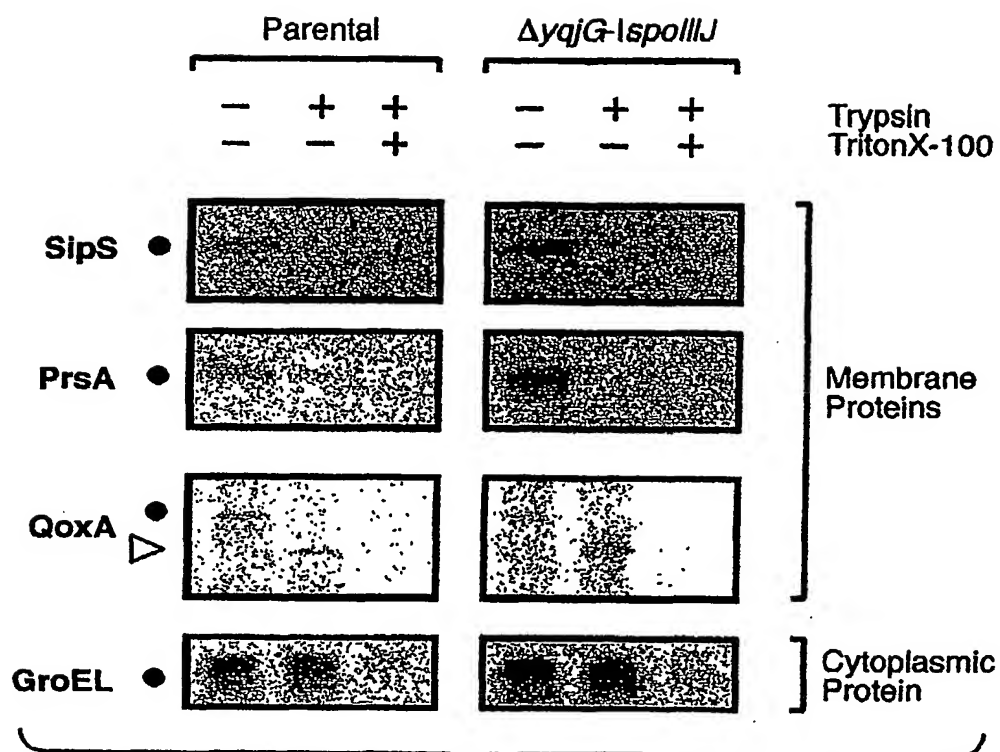


8 / 9

**FIG. 7**



9 / 9

**FIG. 8**

**This Page is Inserted by IFW Indexing and Scanning  
Operations and is not part of the Official Record**

**BEST AVAILABLE IMAGES**

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- ☐ **BLACK BORDERS**
- ☐ **IMAGE CUT OFF AT TOP, BOTTOM OR SIDES**
- ☐ **FADED TEXT OR DRAWING**
- ☐ **BLURRED OR ILLEGIBLE TEXT OR DRAWING**
- ☐ **SKEWED/SLANTED IMAGES**
- ☐ **COLOR OR BLACK AND WHITE PHOTOGRAPHS**
- ☒ **GRAY SCALE DOCUMENTS**
- ☐ **LINES OR MARKS ON ORIGINAL DOCUMENT**
- ☐ **REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY**
- ☐ **OTHER:** \_\_\_\_\_

**IMAGES ARE BEST AVAILABLE COPY.**

**As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.**